Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A carrier recovery system comprising:

an in-phase mixer for mixing an incoming signal with an in-phase reference signal to produce an in-phase baseband signal;

a quadrature-phase mixer for mixing the incoming signal with a quadrature-phase reference signal to produce a quadrature-phase baseband signal;

a DC detector for measuring a DC offset of the quadrature-phase baseband signal; and

a frequency synthesizer for generating the in-phase reference signal and the quadrature-phase reference signal according to the DC offset measured by the DC detector;

wherein the DC detector comprises: ~~an adder, a delay unit and a multiplier.~~

an adder for adding the quadrature-phase baseband signal to a feedback signal for producing an added value;

delay unit coupled to the adder for generating an output being the added value delayed by a predetermined time; and

multiplier coupled to the delay unit is used for multiplying the output of the delay unit by a predetermined coefficient to produce the feedback signal.

2. (Original) The carrier recovery system of claim 1, wherein the carrier recover system locks the quadrature-phase reference signal and the in-phase reference signal to a selected channel in an Advanced Television Systems Committee (ATSC) digital television (DTV) receiver.

3. (Original) The carrier recovery system of claim 1, wherein the incoming signal corresponds to a received vestigial sideband (VSB) signal.

4. (Original) The carrier recovery system of claim 1, wherein the frequency synthesizer generates the in-phase reference signal and the quadrature-phase reference signal to minimize the DC offset of the quadrature-phase baseband signal.

5. (Original) The carrier recovery system of claim 1, wherein the quadrature-phase mixer comprises a first low-pass filter receiving the quadrature-phase baseband signal for filtering out the high frequency term of the quadrature-phase baseband signal.

6. (Original) The carrier recovery system of claim 1, wherein the frequency synthesizer comprises a second low-pass filter coupled to the DC detector and the frequency synthesizer.

7. (Original) The carrier recovery system of claim 6, wherein the second low-pass filter is a loop filter.

8. (Canceled)

9. (Previously Presented) The carrier recovery system of claim 1, wherein the predetermined coefficient is a value less than one.

10. (Original) The carrier recovery system of claim 1, wherein the in-phase mixer comprises a third low-pass filter receiving the in-phase baseband signal for filtering out a high frequency term of the in-phase baseband signal.

11. (Previously Presented) A method of carrier recovery comprising:

mixing an incoming signal with an in-phase reference signal to produce an in-phase baseband signal;

mixing the incoming signal with a quadrature-phase reference signal to produce a quadrature-phase baseband signal;

measuring a DC offset of the quadrature-phase baseband signal; and

generating the in-phase reference signal and the quadrature-phase reference signal according to the DC offset of the quadrature-phase baseband signal;

wherein measuring the DC offset of the quadrature-phase baseband signal comprises:

adding the quadrature-phase baseband signal and a feedback signal to produce an added value;

delaying the added value by a predetermined time; and

multiplying the delayed added value by a predetermined coefficient to produce the feedback signal.

12. (Original) The method of claim 11, further comprising locking the quadrature-phase reference signal and the in-phase reference signal to a selected channel in an Advanced Television Systems Committee (ATSC) digital television (DTV) receiver.

13. (Original) The method of claim 11, wherein the quadrature-phase reference signal is the in-phase reference signal phase-delayed by ninety degrees.

14. (Original) The method of claim 11, wherein the incoming signal corresponds to a received vestigial sideband (VSB) signal.

15. (Original) The method of claim 14, wherein the DC offset of the quadrature-phase baseband signal is caused by to a pilot tone of the VSB signal for a selected carrier.

16. (Original) The method of claim 11, further comprising generating the in-phase reference signal and the quadrature-phase reference signal to minimize the DC offset of the quadrature-phase baseband signal.

17. (Original) The method of claim 11, further comprising filtering out a high frequency term of the quadrature-phase baseband signal.

18. (Original) The method of claim 11, further comprising filtering out a high frequency term of the in-phase baseband signal.

19. (Canceled)

20. (Previously Presented) The method of claim 11, wherein the predetermined coefficient is a value less than one.